system and modern fermentation technologies.

(c) Some significant achievements include: development of diagnostic kits, new vaccine strains, drug delivery systems, basic structural studies, creation of repositories of important microorganisms and training of human resource. A new drug formulation has been transferred to industry for the use in curing systemic fungal infection and leishmaniasis. An oral recombinant candidate cholera vaccine strain has been developed; nucleic acid probes have been developed to detect drug resistant strains of *M. tuberculosis;* tests have been developed for diagnosis of HIV using peptides/recombinant proteins, western blot.

(d) Looking at the disease burden, trends of emerging and re-emerging infections, the future plan of work would be related to the molecular epidemiology, drug development, small therapeutics, recombinant vaccines , genetic medicine and molecular pathogenesis inc'udmg genome mapping, etc.

Research in Malaria

*79. SHRI JAGIR SINGH DARD:
DR. SHRIKANT RAMCHANDRA JICHKAR:

Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) how is the project undertaken by the Department of Biotechnology known as "Research on Malaria for development of diagnostics and maintenance of parasite bank" functioning;

(b) what has been done uptill now under this project; and

(c) what are the future plans?

THE MINISTER OF STATE OF THE MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTER OF STATE OF THE MINISTRY OF POWER (SHRI YOGINDER K, ALAGH): (a) Considering the disease burden of Malaria as a major public health problem in the country, and recommendations of many expert meetings, the Task Force of the department recommended a project entitled "Reasearch on Malaria for development of diagnostics and maintenance of parasite bank" which was funded during March, 1992 to Malaria Research Centre, Delhi.

(b) Experts have assessed the achievements of the project. The malaria parasite bank serves as a National Resource Centre with a variety of human and non-human plasmodia. At present the facility holds well characterised 176 isolates of *Plasmodium falciparum,* 135 *P. vivax,* 3 simian, 10 rodent and 2 avian parasites. *In vitro* cultivation, cryopreservation and revival methods have been fully standardised. More than 124 laboratories/scientists have been supplied parasite and other related biological materials. Monoclonal antibody against circum sporozoite protein has been produced for vector incrimination works. Primers are available to distinguish sibling species of mosquitoes. This will help in understanding the biology of vectors and how they influence the transmission. Scientists have successfully cultured the hepatic stages of human malaria parasite *(P. vivax)* for the first time in the country which will help in providing antigenic materials for research on immunology and immuno-prophylaxis. Short-term cultivation of erythrocytic stages of *P: vivax* has been achieved. Complete cycles of rodent malaria parasites both in animals and in mosquitoes are being maintained for testing the efficacy of anti-malarials and immunological studies. Two new potential chemotherapeutic agents have shown high achizontocidal activities. Cloning experiments have provided very useful information on the phenomenon of parasite resistance in the field population— an emerging problem of the country. Twenty two (33.3%) of the isolates were found to be resistant to chloroquine out of 62 isolates tested from

the recent malaria outbreak in Gurgaon, Haryana.

(c) Collection supply and maintenance of the parasites are continuous activities, further activities to be pursued include: Characterisation of *P, falciparum* and /', Www isolates, tests to be carried out with more liver eel) lines for the cultivation ot hepatic stages of *p, vivax* and *P. falciparum,* for using this in screening of drugs, for ultrastruetural studies of exo-erythroeytic stage, for isolation of antigens from infected hepatoeytes for immunological studies, continuous cultivation of *P. yivax,* animal models lor *P.* *ivax* and *P. falciparum,* maintenance of non-human malaria parasites for screening of antimalarials and for immunebteleglesl studies.

पावर मिड कारपोरेशन ऑफ इंडिया द्वारा आमंत्रित निविदाएं

*80. **श्री राघवजी** : क्या विधुत मंत्री यह बताने की कृपा करेंगे कि :

(क) क्या यह सच है कि पावर ग्रिड कारपोरेशन ने इमरजेन्सी रेस्टारेशन सिस्टम क्रय करने के लिए अलग से खुले टेंडर आमंत्रित नही किये है ।

(ख) यदि हां, तो उसके क्या कारण है;

(ग) क्या यह भी सच है कि विक्रेता को उक्त प्रणाली की ऊंची कीमत दी गई थी; और

(घ) उपरोक्त मशीने किस कम्पनी से खरीदी गई थी और उपर्युक्त अनियमिताओं के कारण कारपोरेशन को कितनी हानि उठानी पडी ?

विधुत मंत्रालय के राज्य मंत्री तथा विज्ञान और प्रौधोगिकी मंत्रालय के राज्य मंत्री (श्री योगेन्द्र कुमार भगतराम अलघ) : (क) से (ग) विन्धयाचल-धूले, नाथपा-झाकरी एवं किशनपुर-मोंगा पारेषण प्रणालियों के लिए पावर ग्रिड कारपोरेशन आफ इंडिया लि0 द्वारा नौ टावर पैकेजिज हेतु आमंत्रित की गई निविदाओं के घटकों में आपातकालीन मुरम्मत प्रणाली (ईआरएस) भी एक घटक थी । समग्र पैकेज के लिए उध्दत समग्र कीमत के आधार पर बोलियों का मूल्यांकन/तुलना की गई थी तथा यह कार्य प्रत्येक मद के दर के आधार पर विचार करके नही किया गया था ।

समग्र पैकेज के लिए न्यूनतम मूल्यांकित बोलीदाताओं को ठेके दिए गए थे ।

टावर पैकेजिज के लिए पांच प्रमुख ठेकेदारों नामशः मैसर्स एस0ए0ई0 नई दिल्ली (लीडपार्टनर) । के0ई0सी0 । मुम्बई (लीडपार्टनर) । ए0बी0ई0एन0जी0ओ0ए0, स्पेन (लीडपार्टनर) ज्योति स्ट्रेज्वर्स लि0 मुम्बई और कोबरा । स्पेन को दिए गए ठेके का ई आर एस0 प्रापण भी एक अंग था इन ठेकेदारों के ठेकों में मैसर्स विट्रेसे । यू एस ए की 10 ई आर एस और मैसर्स कोबरा स्पेन की 2 ई आर एस शामिल थी । पावरग्रिड द्वारा ईआरएस की सीधी खरीद नही की गई है ।

(घ) प्रश्न उत्पन्न नही होता ।

WRITTEN ANSWERS TO UNSTARREP QUESTIONS

Coal rc§QFves of Jharia Coalfields

466. SHRI PARMESHWAR KUMAR AGARWALLA: Will the Minister of COAL be pleased to state;

(a) the total proved goal reserves of jharia goal fields, eeking and non-eoking, separately;

(b) how mueh of these eoa! reserves are e*lraetahle by underground working or open east mine;

(e) how many eoa! mines were working in Jharia coal fields at the time of nationalisation;

(d) how many are working now, area-wise;

(e) how many of the mines working at the time of nationalisation are now closed; and

(f) if so, the reasons therefor?

THE MINISTER OF STATE OF THE MINISTRY OF COAL (SHRIMATI KANTI SINGH): (a) As per Geological Survey of India (GSI) coal inventory on L.T.1997 upto 1200 m. depth and including coal seams of thickness uplo 0.9 m., the total proved coal reserves of Jharia Coalfields is 14,904.58 million tonnes. Out of this, the coking coal